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Indian Standard
SPECIFICATION FOR THERMOMETER SCREENS

(Second Reprint JUNE 1989)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3

August 1971

Indian Standard
SPECIFICATION FOR THERMOMETER SCREENS

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Indian Standard
SPECIFICATION FOR THERMOMETER SCREENS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 4 September 1970, after the draft finalized by the Meteorological Instruments Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 A set of four thermometers, a wet bulb thermometer, a dry bulb thermometer, a maximum thermometer and a minimum thermometer, is generally used at meteorological observatories for routine temperature and humidity measurements. These are exposed in wooden louvred thermometer screens which support the thermometers, shield them from direct radiation from outside sources and from precipitation while allowing free circulation of air around them, and prevent accidental damage. Larger screens are also used for exposing recording instruments.

0.3 Specifications for the different types of thermometer screens in use in the country have been prepared by the India Meteorological Department, but no Indian Standards for these exist. With the manufacture of large number of thermometer screens and their increasing use by various organizations, the formulation of an Indian Standard for thermometer screens and their certification by ISI has become urgent.

0.4 The present standard has been prepared in the interest of standardization of thermometer screens in use in the country and refers to two types of screens, the small thermometer screen, originally known as Stevenson screen, for shielding meteorological thermometers and the large thermometer screens for shielding recording thermographs and hygrographs in addition to thermometers.

0.5 In the formulation of this standard, due consideration has been given to the requirements laid down by the World Meteorological Organization, Geneva.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*.

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*Rules for rounding off numerical values (*revised*).

The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard prescribes the requirements for thermometer screens for exposure of thermometers and recording instruments for the measurement of air temperature and humidity.

2. DESCRIPTION

2.1 The screen is a rectangular wooden box provided with a door in front. All the four sides are double louvred, the roof is double and the floor consists of overlapping boards separated by an air space. The front door is hinged at the bottom and provided with two brass chains so that it comes to rest in an approximately horizontal position when opened to its full extent. The screen itself is supported on four legs. A wooden framework on which the thermometers are mounted is firmly fixed in position inside the screen. This frame is optional in the case of large screen.

3. TYPES

3.1 The thermometer screens shall be of the following two types:

a) Small, for the four meteorological thermometers; and

b) Large, for the thermograph and hygrograph in addition to the four thermometers where required.

4. MATERIAL

4.1 The screen shall be constructed from seasoned teak or deodar wood. All the wooden parts, except those which form the louvres, shall be put together with tenons, mortices and brass screws and strengthened at places with steel, preferably galvanized strips fixed with bolts or screws.

5. DIMENSIONS

5.1 The clear internal dimensions of the screen measured between the inner slats of the louvres on opposite sides and between the middle of the lower roof and floor shall be as follows (*see* Fig. 1 and 2):

	Small Screen	*Large Screen*
Length (between inner slats of louvres)	560 mm	1 325 mm
Breadth (between inner slats of louvres)	315 mm	315 mm
Height (between middle of lower roof and floor)	412 mm	412 mm

5.2 Tolerances — All dimensions shall be within ± 5 percent, but in no case should it exceed 10 mm. In the case of the louvres, the thickness of the wood shall not vary from the value specified by more than 1·5 mm.

6. GENERAL REQUIREMENTS

6.1 Framework — The framework shall consist of four corner posts connected above and below by rails. The two side rails shall be shaped so as to give a slope of 1 in 25 to the floor board on either side for the purpose of drainage.

6.2 Louvres — The sides of the screen and the door in the front shall be double louvred with 14 slats on the door and 16 slats each on the three sides. The double louvres shall be formed by nailing the inner slats to the outer ones with nails of a suitable size.

6.3 Door — The door of the screen shall be a rectangular frame made of wood. It shall be fitted with 14 double louvres. The door shall be fitted with brass butt hinges and shall have a clearance of 3 mm all round between its frame and the main frame of the screen. In its open position the door shall be supported by brass chains attached to hasps fixed on the underside of the lower roof and to staples fixed to the top rail of the door frame. Two brass gate hooks and eyes shall be provided to keep the door closed and two brass picture rings shall take a padlock. A hasp and staple may also be used instead of the two picture rings for lock.

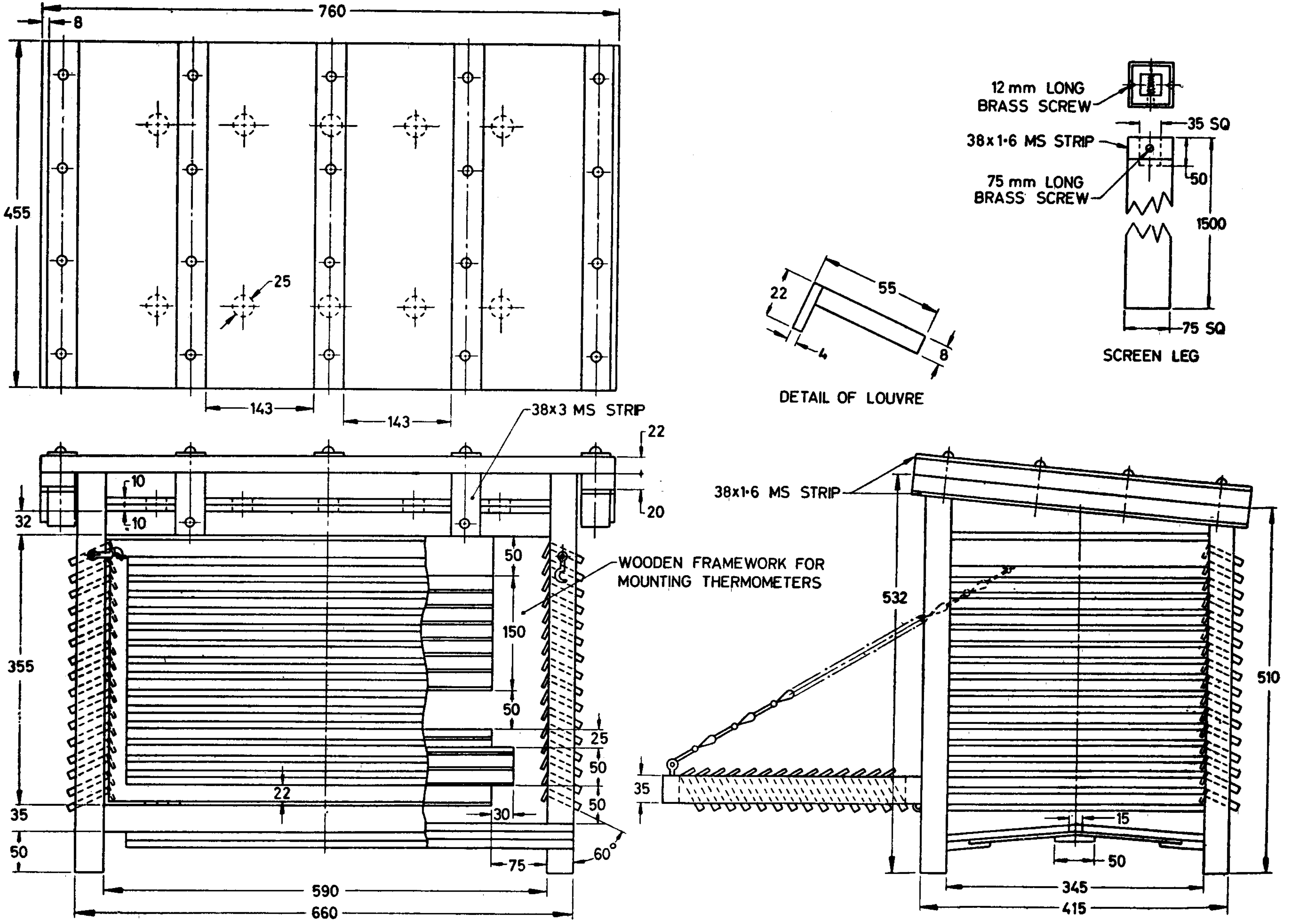
6.4 Floor — The floor shall be formed by two boards with the wider one nearer to the door. The framework for the thermometers shall be fixed to the floor at a distance of 167 mm from the front rail.

6.5 Roof — The roof shall be double. The lower roof shall rest upon the upper rails and be cut at the corners to receive the corner posts and shall have 10 ventilation holes, each being 25 mm in diameter.

6.5.1 The plants of the upper roof shall be tongued in the middle by galvanized steel strips and strengthened by three suitable back to front wooden battens. Two strong intermediate flat steel strips on the underside shall be bent downwards to engage with the top front and rear rails and shall be bolted to them. The roof shall also be screwed to the corner posts by brass screws.

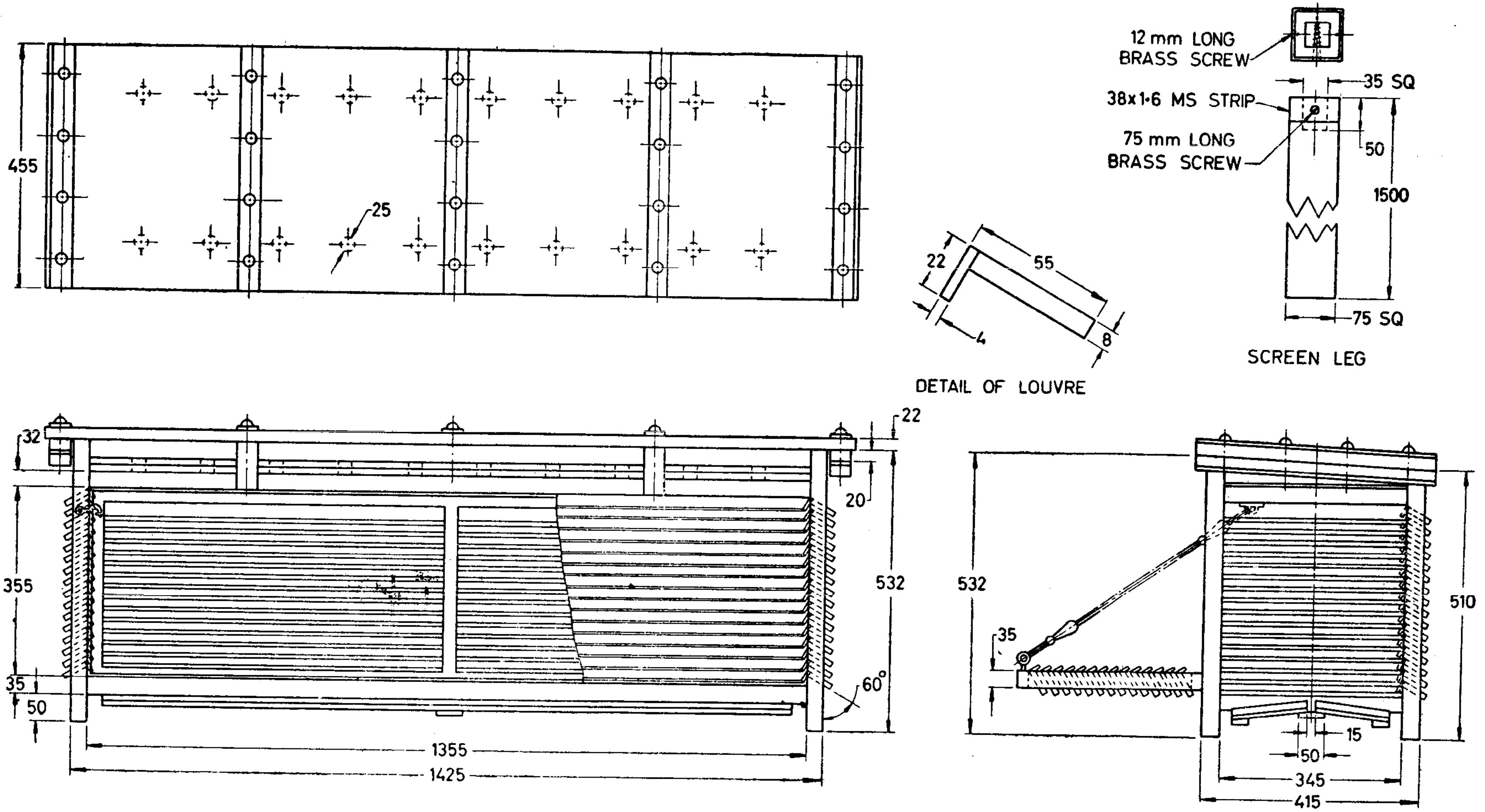
6.5.2 The upper roof shall slope down towards the back for drainage purposes and the air space between the top roofs shall be 50 mm at the front and 28 mm at the rear. The roof shall project beyond the posts by 50 mm at the sides and 20 mm at the front and the rear.

6.6 Legs — The four legs for the screen shall be of wood or steel (*see* Fig. 1 to 3) and their height shall be such that the floor of the screen is exactly 117·5 cm above the ground. At the top they shall be recessed to



All dimensions in millimetres.

FIG. 1 THERMOMETER SCREEN, SMALL



All dimensions in millimetres.

FIG. 2 THERMOMETER SCREEN, LARGE

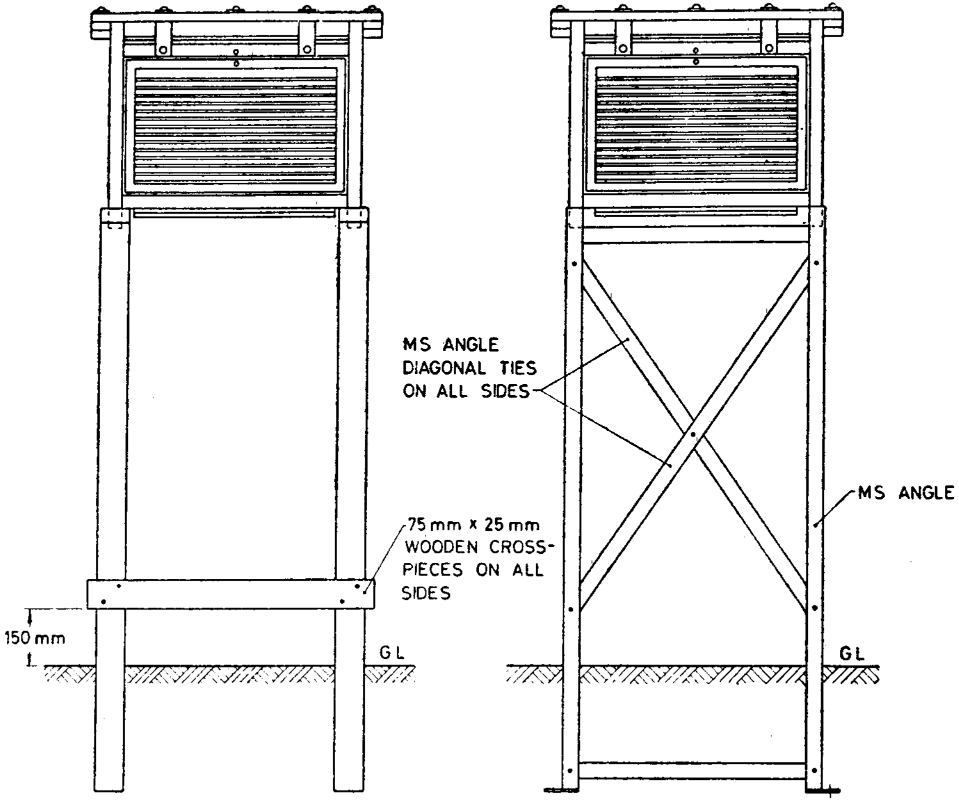


FIG. 3 GENERAL ARRANGEMENT OF WOODEN AND STEEL STANDS

receive the feet of the corner posts of the screens. Each leg shall be strengthened at the top and round the socket by a square ferrule of steel flat. The four legs and the feet of the four corner posts of the screen shall be punched with serial numbers such that the same numbers appear on the same sides of the legs as well as on the corner posts when the screen is correctly installed. The four legs shall be provided with cross-pieces of wood or cross-pieces and diagonal ties of mild steel for keeping them firm in position.

7. WORKMANSHIP AND FINISH

7.1 The complete screen shall be painted inside and outside with a liberal coat of primer, an undercoat and finally with white non-hygroscopic zinc oxide paint. All tenons, and mortices brass screws and metal strips shall have a liberal coating of waterproof primer or paint when the screen is being assembled. The legs shall be similarly painted white, except for their lower ends which shall be heavily tarred with three coats as protection against attack by white ants when embedded in the ground.

8. SAMPLING AND INSPECTION

8.1 All the screens of the same type and belonging to the same consignment shall constitute a lot.

8.2 At least 10 percent pieces of the lot shall be tested individually for all the requirements of this specification.

9. MARKING

9.1 The following information shall be engraved on a name-plate screwed to the upper front rail of the framework of the screen:

a) Manufacturer's name or recognized trade-mark, if any; and
b) Serial number and year of manufacture, for example, No. 123/1969.

9.1.1 The screens may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

10. PACKING

10.1 The screen shall be packed securely in a sturdy wooden box and secured inside it with battens such that the screen and its louvres are not damaged during transit by road or rail. The four legs shall be separately wrapped in clean packing paper and covered with jute cloth with sufficient packing material all round. Alternatively, the screen may be packed as agreed to between the supplier and the purchaser.

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